ADEQ
Arizona Department of Environmental Quality
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EMS IMPLEMENTATION

This guidance manual represents the third environmental management system (EMS) module developed by the Pollution Prevention Unit, Technical Support Section of the Waste Programs Division, Arizona Department of Environmental Quality. It is one of the four EMS modules developed by the department. The manual is intended for use as a voluntary guidance document for small to medium size facilities wanting to establish an EMS. Questions and comments on the EMS modules can be directed to 602-771-4205 or js3@azdeq.gov.

Disclaimer

While this manual is written to provide assistance to individuals preparing an EMS as part of the Pollution Prevention Plan amendment, it does not replace the Arizona Revised Statutes, Title 49, Chapter 5, Articles 4 and 5. Those who prepare documents read the appropriate regulations before using this guidance.

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I. Introduction

Module One of this template helps you initiate an Environmental Management System (EMS) for your facility. Module Two guides you in setting up a simple EMS: identifying your facility's environmental aspects and their impact on the environment.

In this module, we identify the operations associated with the significant aspects you have previously identified and discuss the ways to control them from negatively impacting the environment. We will discuss in this module, five factors that can be used to control those aspects. They are: (1) operational controls, (2) employee training, (3) communication, (4) emergency preparedness and response, and (5) documentation and recordkeeping.

1. Operational controls, also known as operating procedures or work instructions represent a mechanism used by a facility to control its environmental aspects. Operational controls are basically necessary for any operation which is regulated.

2. Training of employees whose jobs or activities can impact the environment is critical for successful implementation of your EMS. The EMS team should develop and maintain procedures to identify and track environmental training needs of those employees, and implement an employee training program.

3. Communication is also vital for successful implementation of an EMS. The EMS team should establish and maintain procedures for internal communication of the EMS between all employees. Similarly, procedures for external communication with the public, including local community and environmental interest groups, should be developed.

4. Generally, most facilities have already developed some form of *emergency response* procedures addressing an emergency, spill or fire, and meeting OSHA, EPA, and fire department requirements. The EMS team should ensure that an appropriate emergency response plan is established and maintained to adequately prepare, respond, and mitigate accidents, spills, fires, or other emergency situations.

5. The final factor of EMS implementation is *documentation and recordkeeping*. The EMS team should establish documentation and record keeping procedures to ensure that the EMS program is functioning effectively and efficiently.

In the following sections, a detailed discussion on each of these five factors is provided. Because each of these EMS implementation factors has the same level of importance, it is up to the EMS team to decide on the order of implementing these topics. We recommend, however, to address the operational controls first.

II. Developing an Operating Procedure and a Work Instruction

Operating procedures and work instructions function as a mechanism to control a facility's environmental aspects. Therefore, they are also called "operational controls."

There should be an operating procedure or work instruction for **any process** in the facility, which, if uncontrolled, would have a detrimental effect on the environment.

Procedures and work instructions are used interchangeably in this context, however, procedures are usually at a higher level in the document hierarchy, more general, and applicable to a larger audience. Work instructions are applicable to a specific task or process.

There are three things to remember when developing operating procedures and work instructions:

1. The EMS team must ensure they conform to the EMS requirements including compliance with environmental regulations and permit conditions.
2. The operating procedures and work instructions should be written by the department that oversees the operation.
3. Employees who are going to be involved in the activities or processes should be trained on the procedure or work instruction.

Final review of the facility's operating procedures will be made by the EMS manager, while departmental management will sign them off. The work instructions will be signed by each department's supervisor and acknowledged by employees who are going to implement the procedure.

Because an operational control is required for any operation which is regulated, or any process in the facility which would have a detrimental effect on the environment, if the process is not sufficiently controlled, the first step in developing an operational control is to find out **which aspects of a process (or operation) need an operational control**.

In Module Two we have developed a list of operations which are regulated or have aspects resulting in significant impacts. Keep in mind that the list applies only to three operations: warehousing, maintenance, and boiler. The following table summarizes those three operations (in Column 1) which altogether have 17 aspects, displayed in Column 2.

TABLE A

Activity, process, product, service (1)	*Aspect* (2)	*Signif. Impact* (3)	*Regulated* (4)	*Current Procedure* (5)	*EMS Procedure* (6)	*Responsbl Departmnt* (7)
Ware housing	1. Electricity use	Yes	Yes	-	5	Operations
	2. Ventilation emission	Yes	Yes	Preventive maintenance	1	Operations
	3. Wastewater discharge	-	-	Preventive maintenance, employee training	4	Operations
	4. Chemical spill potential due to unloading and transfer operation	-	Yes	Storm water P2 plan, SPCC, MSDS, manifests, employee training	7	Operations Admin.
	5. Generation of solid waste	Yes	Yes	-	3	Admin.
Mainte nance	6. Use of paints and solvents	Yes	Yes	MSDSs	6	Operations
	7. Use of oils	-	-	MSDSs	6	Operations
	8. Oil spill potential	-	Yes	Storm water P2 plan, SPCC, preventive maintenance of tanks, MSDS, manifests, employee training	7	Operations Admin.
	9. UST leak potential	Yes	Yes	Preventive maintenance of leak detection system	7	Operations
	10. Vehicle Refueling emission	-	-	Preventive maintenance	1	Operations
	11. Refueling spill potential	-	Yes	Storm water P2 plan, SPCC, preventive maintenance of tanks, MSDS, manifests, employee training	7	Operations Admin.
Boiler	12. Use of fuel	Yes	Yes	MSDSs	6	Operations
	13. Fuel oil spill potential	-	Yes	Storm water P2 plan, SPCC, preventive maintenance of tanks, MSDS, manifests, employee training	7	Operations Admin.
	14. Air emissions from stacks	Yes	Yes	Preventive maintenance, stack test, start-up and shut down, employee training	2	Operations
	15. Use of chemicals for treating water, boiler blow down	Yes	Yes	MSDSs	6	Operations
	16. Chemical spill potential	-	Yes	Storm water P2 plan, SPCC, preventive maintenance of tanks. MSDS, manifests, employee training	7	Operations Admin.
	17. Wastewater generation due to normal operation	Yes	Yes	Preventive maintenance, employee training	4	Operations

Of the listed 17 aspects, 14 are required to have operational controls either because they are regulated (a "yes" in column 4) or because they have significant impacts (a "yes" in column 3), or because of both reasons. Columns 3 and 4 in the table show that the remaining three aspects which are not required to have an operational control are aspects #3, 7, and 10.

Of those aspects requiring operation controls, **some aspects can be grouped together based on their similarity in impacting the environment**. Then, EMS procedures or work instructions are developed for these groups of aspects.

Ventilation emission and vehicle refueling emission, for example, can be grouped together under the label of fugitive air emissions. Use of oils, fuel, paints and solvents are combined under the heading of use of chemicals. Similarly, chemical spill, oil spill, refueling spill, and underground storage tank (UST) spill potentials can be grouped as spill management. This pattern of grouping results in the followings:

1 Fugitive Air Emissions
2 Stack Air Emissions
3 Solid Waste Management
4 Wastewater Discharge
5 Electricity Use
6 Chemicals Use
7 Spill Management

The above example shows that seven EMS operational controls are required for the warehousing, maintenance, and boiler operations. Column 6 in Table A displays those seven operational controls with their respective aspects of the three operations.

Once the required EMS operational controls have been identified, the EMS team has to find out **whether the facility has such procedures or work instructions** already in place. Then, the EMS operational controls will be developed from the facility's existing procedures and instructions.

Column 5 in Table A identifies the operation controls which are currently available in the facility. The operational controls may include any operating procedures, work instructions, preventive maintenance plans, monitoring plans, regulatory compliance, or product quality documents. Many of these operation controls may have been identified when the facility was developing its EMS (see Module Two).

Column 7 shows the responsible department and the responsible person in the department in charge of the operation for which the procedures and work instructions are required. The department is also responsible for the proper implementation of these operational controls.

To direct the responsible departments to write their own operational controls, it is necessary for the EMS team to **develop a protocol for writing the general EMS operational controls**. The protocol contains a set of rules which describe the content and requirements of operating procedures or work instructions for any operation which if uncontrolled, would have a detrimental effect on the environment.

Structurally, operational controls should include the following:

1. Responsibility – who does the procedure or instruction apply to.
2. Purpose and Scope – what precise process or activity does the procedure or instruction apply to.
3. The operational steps for the process itself.
4. Emergency Response – what the user has to do if operating parameters are exceeded, or what effect will occur if the procedure or instruction is not followed.
5. Records – what kind of environmental record is generated as a result of implementing the procedure or instruction.

A sample of a simple protocol for writing operational controls is provided on the following pages.

Procedure No. **EMS-II**
Issue Date **January 1, 2005**
Rev **0**
Title **Protocol for Writing Operating Procedures and Work Instruction**
Approved by

1 Purpose

This protocol is developed to describe the content of operating procedures and work instructions for activities and processes of XYZ Facility, which, if uncontrolled, would have a detrimental effect on the environment.

2 Scope

2.1. All operating procedures and work instructions shall mention the activities and processes being monitored.

2.2. A corrective provision shall be provided in the procedure in case operating parameters are exceeded.

3 Definitions

Monitoring: measurement checks or samples collected as specified in the monitoring and sampling plan.

Operating Parameter: specific conditions required in an operation. Example: temperature or pH requirements, air flow, magnetic gauge settings.

4 Procedures

4.1. Any description of an activity performed to prevent a negative environmental impact.

4.2. Operating parameter, if applicable, must be incorporated into the procedure or work instruction.

4.3. If operating parameters are exceeded, or if the procedure is not followed due to a justified reason, an emergency response provision must be provided to instruct what the user has to do in order to correct the deviation.

4.4. Any operating procedure that requires measurement via the use of monitoring equipment must have a separate monitoring and measurement procedure which specifies frequency of calibration of monitoring equipment so as to ensure measurement accuracy.

5 Updates and Reviews

Operating procedures and work instruction must be reviewed annually or when the activity described changes. The current procedure should always be available at the workplace.

6 Responsibilities

6.1. The supervisor responsible for an activity or process will be in charge for developing and implementing the operating procedure or work instruction of activities under his supervision.

6.2. Approval of the operating procedure is usually the responsibility of the department manager.

6.3. The procedure itself is written for the person following it (line operator).

7 Documentation

1. All operating procedures and work instructions will be maintained in hard copy or electronically by the EMS manager in addition to the operational department.

2. Response actions to correct deviations from operating procedures or work instruction will be maintained.

3. Records generated in the course of following the procedure (pH measurements, recording of temperature, gauge readings) must be maintained.

4. The EMS manager must ensure that all procedures or work instructions are current, legible, and located at the point of use.

Procedures or work instructions are developed as a tool to control facility operations in order to prevent a detrimental effect on the environment. Operational controls, however, can also have other important functions. They include the following:

1. As a Communication Tool – it makes the person following the procedure aware of the company's EMS and what environmental aspect he/she is controlling via the procedure or instruction.
2. As a Training Need Assessment – is the user trained and competent in following the procedure or instruction.
3. As a Monitoring and Measurement Check – if the procedure or instruction requires measurement via the use of equipment (pH meters, magnetic gauges, etc.), are these pieces of equipment calibrated so as to ensure accuracy.
4. As a Document Quality Control – whether the procedure or instruction is current, legible, and available at the point of use.

The above description shows that having an operational control is a necessity and beneficial for a facility in many ways.

In our example, the three facility operations (warehousing, maintenance, and boiler operations) will have seven EMS operational controls which will be developed by using the protocol outlined in the previous paragraphs. These seven EMS operational controls address the following seven groups of aspects:

1. Fugitive Air Emissions
   - Ventilation Emissions
   - Refueling Emissions

2. Stack Air Emissions

3. Solid Waste Management

4. Wastewater Discharge
   - From warehouse
   - From boiler

5. Electricity Use
   - Lighting
   - Conveyors

6. Chemicals Use
   - Paints and solvents
   - Oils and fuels
   - Water treatment chemicals

7. Spill Management
    - Unloading and transfer operations
    - AST and UST leaks
    - Refueling
    - Boiler feed stock

III. Employee Training

There are a number of employee training sessions required for an EMS facility. For an EMS to work, all employees must participate in the program. Communication and education, or training, can be designed by the facility to motivate employee participation. In this regard, an EMS awareness training represents the first type of employee training. In the EMS awareness training, the importance of employee contribution and their role in the EMS program must be emphasized.

In the **EMS awareness training** all employees need to know:

1. What an EMS is
2. Why the facility is adopting an EMS
3. How the employees can contribute to the success of the EMS program

EMS requires that all personnel who have responsibility or authority over activities that have significant environmental impacts must be trained in a job-related training. This requirement necessitates the facility to do two things:

1. To identify environmental training needs of those personnel
2. To track the implementation of the job-related training, and review and update the training as necessary

Job-related training is critical because EMS procedures and work instructions developed for processes and operations of significant impact may change the existing work practices as well as the responsibilities of an employee. To anticipate these changes, the affected employee must be prepared through this job-related training.

In the **job-related training** the affected employee needs to know:

1. What changes are in the procedures or work instructions
2. Why the changes are necessary
3. Which changes will affect the employee's daily activities

Procedural change need not be difficult. It can be a very simple change. An employee who used to check the reading of an equipment to ensure that the equipment runs per equipment instructions, could now also be required to write down his reading in a log book because of the requirement of the newly developed EMS operational procedures.

Obviously, job-related training should be conducted by someone knowledgeable about the operation. The supervisor who directly supervises the operation, is typically the trainer.

Because environmental awareness should be the concern of all employees, job-related training should also **address pollution prevention** and **environmental compliance** issues. In this regard:

1. Job-related training should encourage employees to look for opportunities to conserve water, energy, and natural resources and to prevent pollution from happening.
2. Although compliance issues may not be directly related to the employees' work, the employees need to be aware of the potential environmental impact of their activities.

While EMS awareness training and job-related training are important, they are just a part of the training necessary to maintain an effective EMS. To maintain an effective EMS, an employee training program should also address mandatory employee training as required by law, such as environmental, health, and safety (EHS) training. The EHS training must be conducted by certified trainers.

EHS training may include the following:

1. Hazard Communication	OSHA
2. Fire Response	OSHA
3. Health and Safety (confined space, PPE, etc.)	OSHA
4. Storm Water Pollution Prevention	SWPPP
5. Spill Prevention Control and Countermeasure	SPCC
6. Hazardous Waste Management	RCRA
Etc.	

For each of the trainings: EMS awareness, job-related, or EHS, a program must be developed. Some facilities designate their Human Resources departments to handle all aspects of employee training. Some others assign their EHS divisions. Whomever they choose, all three types of training need to be addressed.

Developing a training program, as mentioned earlier, includes identifying all types of training in the facility and tracking the training implementation. The responsibility to identify training and to track employee training can be assigned to a single department, or if preferable, the responsibility for tracking can be shared by multiple departments.

The need for employee training can change due to changes in training requirements. Therefore, it is imperative that a facility has a system in place that can be used to review training requirements. One type of system is described below.

A system to **identify training** includes making a list of:

1. All the types of training conducted by the facility, regardless of whether it is connected with a significant impact
2. The frequency of training
3. The trainers
4. The trainees

The format or duration of training varies by the types of training. Choose the appropriate training mode so that you can conduct training without disrupting facility operations. Employee training can take the form of an all-day workshop, a 15-minute presentation at lunch, or an agenda item for discussion at weekly EHS meetings. The facility may also use videos that employees can sign out and watch at their convenience.

An example of a facility's training identification is provided in the table below. The table shows that a total of ten types of training are identified for the facility.

No	Training Type	Required by	Frequency	Trainee	Trainer
1	EMS Awareness	EMS	Annual	All employees	EMS Manager
2	Operational Controls	EMS	Annual	Warehousing, boiler, maintenance employees	Immediate Supervisor
3	Hazard Communication	OSHA	Annual	Warehousing, boiler, maintenance employees	Operations Supervisor
4	Fire Response	OSHA	Annual	Warehousing, boiler, maintenance employees	Operations Supervisor
5	Boiler Operation	Air Quality Permit	Annual	Boiler employees	Operation Supervisor
6	Storm Water Pollution Plan	SWPP	Annual	All employees	Storm Water Operator
7	Spill Prevention Control and Countermeasure	SPCC	Annual	All employees	Emergency Response Coordinator
8	Hazardous Waste Management	RCRA	Annual	Warehousing, boiler, maintenance employees	Operations Supervisor
9	Worker Health and Safety	OSHA	Annual	Warehousing, boiler, maintenance employees	Operations Supervisor
10	New Employee Orientation	Facility	Per Policy	All new employees	Human Resources

In implementing an employee training program, a facility must have a system to track training. The tracking can be organized by training type and/or by employee.

Employee training must be documented. Tracking forms which are used to monitor the facility's training program represent a documentation of training activities that will satisfy EMS requirements. This documentation is necessary in order to demonstrate that all employees receive adequate training to perform their duties in a safe and environmentally compliant manner and that your training program is functioning efficiently in assuring environmental regulatory compliance.

To maintain continuity and consistency of a facility's training program, an EMS protocol for employee training must be developed. A sample EMS protocol for employee training is provided below.

Procedure No.	**EMS-III**
Issue Date	**January 1, 2005**
Rev	**0**
Title	**Employee Training and Tracking**
Approved by	

1 Purpose

The purpose of this procedure is to implement employee training at **XYZ Company** to ensure all employees receive adequate training to perform their duties effectively in a safe and environmentally sound manner.

2 Scope

This procedure contains employee training requirements for the EMS and facility operations consisting of EMS awareness training, job-related training, and environmental, health, and safety (EHS) training.

3 Procedures

3.1. The EMS manager will identify training needs of all employees with the assistance of the EHS and Operations managers. The result of training needs identification is a list of employee training needs which contains the training types, the names of employees requiring training, the frequency of training, and the trainer.

3.2. The EMS manager will assign a representative (usually from the Human Resources department) to coordinate employee training. This training coordinator is responsible for all aspects of employee training.

3.3. The training coordinator will utilize this list to develop a series of training modules. Each module describes the content (scope and depth) of training, the format and duration of training (e.g. a half-day workshop, a 30-minute video show, etc.), a designated in-house trainer or a certified external trainer who has expertise appropriate to the training to be delivered.

3.4. The training coordinator will track employee training by using a sign off sheet or log form in each of the training classes.

4 Update and Reviews

Training and tracking must be reviewed annually or when environmental or legal requirements change. Usually EMS training is given bi-yearly at a minimum.

5 Responsibilities

The Human Resources (HR) Department is responsible for training records. Any update or change to environmental training protocol must be approved by the EMS and Operations managers.

6 Documentation

Employee training and tracking protocol, list of employee training needs, and employee training records will be maintained in hard copy or electronically by the HR Department or EMS manager.

IV. Internal and External Communication

The two most critical parts of environmental management systems are management commitment and employee participation. Training, discussed in the previous sections, is one of the tools for employee participation. The other tool is internal communication. This internal communication must be designed to facilitate employee participation.

EMS also requires facilities to strengthen external communication on environmental issues to the local community, environmental groups, government agencies, and the public. Obtaining public understanding on these issues is the goal to sustain an EMS program.

The EMS Manager is responsible for coordinating the EMS communication program, both the internal and external programs. Items to be communicated in the internal communication program include the status of environmental compliance, EMS objectives and targets, and the environmental policy.

Communication can be defined as a tool for transmitting information among and between groups of people. Effective communication must satisfy the following requirements:

1. The message must reach the intended audience
2. The audience must understand the content of the message
3. The audience must be able to respond to the message

A good internal communication program must be designed to address the above requirements.

The first and second requirements state that the message must reach the intended audience and the intended audience must understand the content of the message. This means that the communication plan must specify who the intended audience will be, the kind of message that will be communicated, and how the message can reach the intended audience effectively.

Communication techniques are plentiful, particularly with the advance of computer technology. The widespread use of e-mail, for example, makes communication faster than many other conventional communication media. Other communication media to consider include employee bulletin boards, company newsletters, and group meetings, among others.

The third requirement states that the audience must be able to respond to the message. This means that internal communication plan must offer an atmosphere of openness where employees can transmit both good and bad information without fear of reprisal.

In order to develop a communication plan for your facility, you need to identify internal communication mechanisms currently practiced at the facility, compare them with what is needed for EMS communication, and then develop a communication plan utilizing applicable

communication techniques.

Typically, a communication plan involves identifying what techniques are used for communication (interoffice memorandum, e-mail, company newsletter, posted notices on bulletin board, suggestion boxes) and what information should go to what audience. A simple communication plan is provided below:

Communication Technique and Type of Information	Origin of Information	Target Audience
Interoffice Memorandum and/or e-mail: - notice of audit - equipment shutdown schedule - accidental spill - equipment malfunction - emission exceedance - notice of violation - citizen complaint - progress report on objectives and targets - update on measurement results - etc.	EMS Manager Operations Supervisors	Warehousing Employees Boiler Operations Employees Maintenance Employees
Company Newsletter - EMS program update - etc.	EMS Manager Human Resources	All Employees
Bulletin Board - notice of EMS award - notice of deadlines - etc.	EMS Manager Operations Supervisors	All Employees
Employee Suggestion Box	All Employees	EMS Manager Supervisors Human Resources

The EMS Manager is the responsible person for handling EMS communication including developing a protocol for internal communication. The protocol outlines the types of communication, when the internal communication protocol must be updated and the responsibility associated with developing and updating the protocol.

A simple protocol for EMS internal communication is provided on the following pages.

Procedure No.	**EMS-IV**
Issue Date	**January 1, 2005**
Rev.	**0**
Title	**Internal Communication**
Approved by	

1. Purpose

The purpose of this procedure is to establish and maintain an internal communication system for the **XYZ Company.**

2. Scope

This procedure contains the types of information required to be communicated internally for sustaining the EMS and the communication techniques used for transmitting information to the appropriate audience.

3. Procedures

3.1. The EMS Manager will identify the type of information to be communicated for facility operations, EMS implementation, environmental compliance, and employee participation. The information includes EMS updates on objectives and targets, schedules of environmental audits, notices of violation, citizen complaints, accidental spills, emission issues, and any other topics related to environmental management.

3.2. The EMS Manager will list the communication techniques associated with each type of information identified in 3.1. The techniques include interoffice memorandum, e-mail, company newsletter, bulletin board, employee suggestion box, and group meetings.

3.3. The EMS Manager will develop a communication plan which covers communication techniques and related information to be transmitted, the origin or initiator of the information, and the intended audience.

4. Updates and Reviews

The internal communication plan will be reviewed annually and revised as necessary.

5. Responsibilities

The EMS Manager is responsible for updating the internal communication plan and revising the protocol when needed.

6. Documentation

The internal communication plan and protocol will be maintained in hard copy or electronically by the EMS Manager.

Internal communication facilitates employee participation in the EMS program. For communicating information on environmental issues and the EMS to the local community, environmental interest groups, the regulating agencies, and the general public, you need to establish and maintain an effective external communication system.

Effective external communication system must facilitate and encourage public understanding and dialogue on environmental issues and public concerns.

External communication can take many forms. These may include:

1. Neighborhood hotline for questions or complaints regarding your facility,
2. Press releases on environmental activities,
3. Open house for the community and the employees' families,
4. Facility tours for the public,
5. Sponsorship of community events,
6. Participation in local actions targeting the environment,
7. Presentations in workshops, conferences, and schools,
8. Membership and involvement in industry associations and chamber of commerce,
9. Correspondence with regulating agencies.

From the type of communication listed above you may use those types, or techniques, which are most appropriate for your external communication needs. Similar to an internal communication plan, an external communication plan involves identifying what techniques are used for external communication, what kind of information is transmitted, the source or origin of the information,

and the destination or the intended audience. An external communication plan can be as simple as the following example:

Communication Technique and Type of Information	Origin of Information	Target Audience
Neighborhood Hot Line - questions - complaints: noise, odor, etc.	General Public	EMS Manager Human Resources
Press Release - environmental activities	EMS Manager	General Public
Open House - facility's programs	EMS Manager Human Resources	General Public
Facility Tours - facility operations	EMS Manager Human Resources Operations Supervisors	General Public
Sponsorship - community events	EMS Manager Human Resources	Local Community
Participation - local actions on environment	EMS Manager Human Resources	Local Community
Presentation - facility programs	EMS Manager	General Public
Membership and Involvement - trade associations	EMS Manager	Industrial Community
Correspondence - permit - spill/release reporting - compliance issues, etc.	EMS Manager	Regulating Agencies

The EMS Manager is the contact person for handling external communication. This single designation ensures that no conflicting responses are sent out from the company. The single designation also facilitates smoother communications between the company and the regulating agencies because the agencies know whom to contact in case of emergency or when in need of a speedy response to an inquiry.

Similar to the case of internal communication, a protocol for external communication must also be developed. The external communication protocol describes the types of external communication, when the protocol must be updated, and the responsibility associated with developing and updating the protocol.

A sample protocol for EMS external communication is provided below.

Procedure No.	**EMS-V**
Issue Date	**January 1, 2005**
Rev.	**0**
Title	**External Communication**
Approved by	

1. Purpose

The purpose of this procedure is to establish and maintain an external communication system for the **XYZ Company**.

2. Scope

This procedure contains the types of information required to be communicated externally for sustaining the EMS and the communication techniques used for transmitting information to the appropriate audience.

3. Procedures

3.1. The EMS Manager will identify the type of information for effective external communication that encourages public understanding and dialogue on environmental issues and public concerns. The type of information includes the facility's programs, operations, activities, and any other events related to environmental management as well as community and public concerns.

3.2. The EMS Manager will list the external communication techniques associated with each type of information identified in 3.1. The techniques include hotline, press release, open house, facility tour, sponsorship, event participation, conference presentation, association membership and involvement, and correspondence.

3.3. The EMS Manager will develop an external communication plan which covers communication techniques and related information to be transmitted, the origin or initiator of information, and the intended audience.

4. Updates and Reviews

The external communication plan will be reviewed annually and revised as necessary.

5. Responsibilities

The EMS Manager is responsible for updating the external communication plan and revising the protocol when needed.

6. Documentation

The external communication plan and protocol will be maintained in hard copy or electronically by the EMS Manager.

V. Emergency Preparedness and Response

An EMS requires a facility establish and maintain procedures to respond to and report accidents, spills, process upsets, malfunctions, and other emergency situations, and to mitigate associated environmental impacts. The EMS facility is also required to provide for a review of the procedures after the occurrence of an emergency.

Emergency can be defined as the conversion of the source of danger into an actual occurrence of loss, injury, or some form of damage that calls for immediate action.

The definition implies that the first thing to do in developing an emergency plan is to identify the sources of danger inside your facility. This means to identify areas, equipment, or processes that would require an emergency response in the event any of those sources of danger triggers an emergency situation. Here are examples of things to look for:

- Storage tanks (above ground and underground)
- Storage areas where hazardous materials/wastes are stored
- Loading and unloading areas
- Truck routes within the facility
- Process equipment involving hazardous materials
- Pollution control equipment
- Any situation that can create spark or fire
- Company owned or managed hazardous material in transportation or use offsite

In order to meet EPA, OSHA, and DOT requirements, most facilities have in place some form of emergency preparedness and response system in the event of an emergency, spill or fire.

For a facility to establish an EMS emergency plan, it is necessary to identify emergency response plans and procedures currently in place. These plans may include a Hazardous Waste Contingency Plan, Spill Prevention Control and Countermeasures Plan, Storm Water Pollution Prevention Plan, Air Quality Permit Excess Emissions Report, Fire Evacuation Plan, Hazardous Material Management Plan or other emergency plan required by your local fire department, etc. From those plans and procedures, you will be able to identify equipment and emergency resources available in your facility. Here are examples of equipment and emergency resources:

- Emergency response equipment (fire extinguishers, spill kits, oil absorbent, eye wash stations, personal protective equipment, first aid kits, etc.
- Fire safety equipment (water hoses, sprinklers, smoke alarms, etc.)
- Communication equipment (telephone, two-way radio, etc.)
- Maps (facility layout, process flow, etc.)
- Emergency resources (Material Safety Data Sheet, etc.)
- External emergency responders (fire departments, police/hazmat teams, contractors, hospitals, etc.)
- Regulating agency for emergency notification (EPA, state, county, city, etc.)

Based on information contained in the existing emergency response plans, a simple table can be developed. The table summarizes the scope of each plan and its respective emergency coordinator. A sample summary table is provided below.

Existing Emergency Plan	Scope of Plan	Emergency Coordinator
Hazardous Waste Contingency Plan	Hazardous waste emergency, coordinator, equipment, emergency response.	Operations Supervisor
Spill Prevention Control and Countermeasures Plan	Oil spills, emergency equipment, response.	Central Emergency Response Coordinator
Storm Water Pollution Prevention Plan	Contamination of storm water within the facility due to facility operations.	Storm Water Program Coordinator
Air Quality Excess Emissions Report	Emergencies due to boiler Operations	Operations Supervisor
Emergency and Fire Evacuation Plan	Spills, fire, explosion, and any other type of emergencies, emergency equipment, alarm system, contact with outside emergency responders, emergency response, evacuation process.	Human Resources

The EMS Manager (or EHS Manager) is responsible for establishing and maintaining the facility's emergency preparedness and response procedure. He must ensure that the existing emergency plans and procedures are adequate for the type of emergency which can happen in his facility, otherwise, identify any gap that must be filled for his EMS.

As part of emergency preparedness, an emergency plan must contain provisions for the following areas:

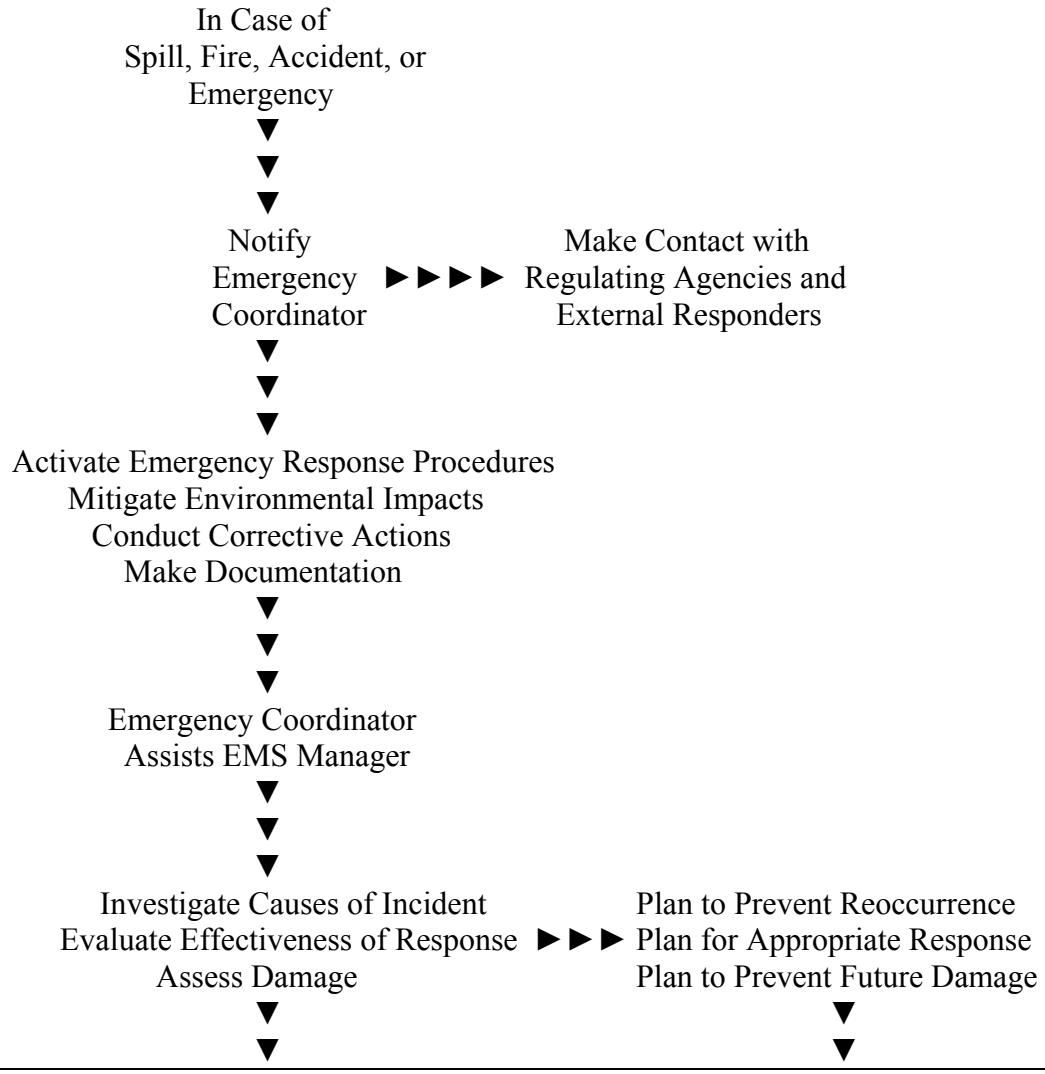
1. Emergency training → this represents an integral part of the employee training program (as discussed in the previous section of this module).

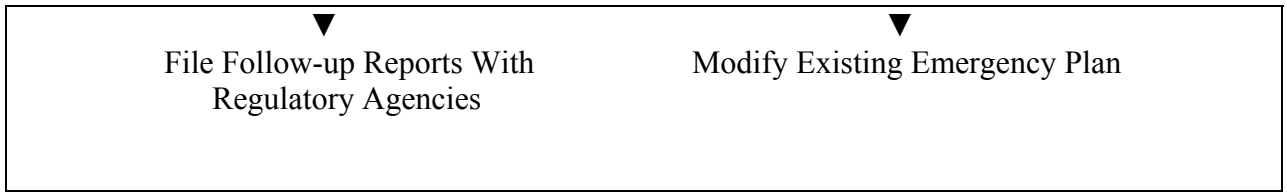
2. Emergency drills → this is conducted on an annual basis or as required by regulation.
3. Coordination with others → this is conducted by a single contact person: the Emergency Coordinator whose task is to coordinate all emergency response measures. Designated by the EMS Manager, the Emergency Coordinator is also responsible for emergency reporting required by regulatory agencies and the EMS.

An emergency plan must also contain a response procedure in the event of an emergency. One of the ways to show the emergency response process is through a flowchart. An example is provided below.

EMERGENCY RESPONSE FLOWCHART

XYZ COMPANY





To maintain continuity and consistency of a facility's emergency preparedness and response plan, EMS protocol for emergency planning must be developed. A sample of the protocol is provided below.

Procedure No.	**EMS-VI**
Issue Date	**January 1, 2005**
Rev.	**0**
Title	**Emergency Preparedness and Response System**
Approved by	

1. Purpose

The purpose of this procedure is to establish and maintain an emergency preparedness and response system for the **XYZ Company**.

2. Scope

This procedure identifies the emergency preparedness and response plans for facility operations, the types of required emergency equipment, and procedures for training, response actions and reporting.

3. Procedure

3.1. The EMS Manager will identify potential adverse environmental impacts that could arise from an emergency situation.

3.2. The EMS Manager will identify and make a list of existing emergency preparedness and response plans for all operations. These plans include:

a. RCRA Emergency Response Plan
b. SPCC and other spill plans
c. SWPPP
d. Air Quality Excess Emissions Report

e. General Emergency Plan, Fire Evacuation Plan

3.3. The EMS Manager will identify and make a list of existing emergency response equipment. The list specifies the location and condition or expiration date of each equipment. The types of equipment include:

a. Fire extinguishers and sprinkler systems
b. Fire and emergency alarms
c. Spill kits, absorbents, mops, brooms, buckets, shovels, etc.
d. Personnel protective equipment
e. First aid kits, eye wash stations
f. Other response equipment

3.4. The EMS Manager will evaluate and ensure that current emergency preparedness and response plans, including emergency equipment, are adequate to respond to emergencies. Upon review, the EMS Manager may revise the plans with the assistance of the Emergency Coordinator. The Emergency Coordinator is appointed by the EMS Manager.

3.5. In case of spill, fire, accident, or emergency, emergency response must be activated. The attached "Emergency Response Flowchart – XYZ Company" outlines the procedure. It is the responsibility of the Emergency Coordinator to coordinate all emergency response measures. This includes contacting regulating agencies and external responders. He must provide reports required by the regulating agencies and ensure that the external responders are informed of potential hazards at the facility.

3.6. The EMS Manager will ensure that evacuation maps and emergency phone numbers are posted in designated locations.

3.7. The EMS Manager will ensure that emergency personnel have adequate training for any emergency.

3.8. The EMS Manager and the Emergency Coordinator will conduct an emergency drill annually or as required by regulation.

4. Updates and Reviews

4.1. The emergency preparedness and response plans will be reviewed annually and updated as necessary to accommodate changes in processes or legal requirements.

4.2. Each emergency is to be reviewed for appropriate response and for prevention of reoccurrence immediately after emergency. Upon review, inadequate plans are to be revised.

5. Responsibilities

The EMS Manager and the Emergency Coordinator are responsible for updating the emergency preparedness and response plans.

6. Documentation

The emergency preparedness and response plans will be maintained in hard copy or electronically by the EMS Manager.

VI. Records and Recordkeeping

Records are information recorded at a point in time and never changed thereafter. Documents, on the other hand, are information that changes over time. The EMS Manual is not a record. Neither are Operational Controls, Work Instructions, or other information that can be revised over time. The records "form" is a document, however, once the form is filled in, such as with equipment calibration information or applicable environmental laws, the form becomes a record.

Environmental records may include the following:

1. information on applicable environmental laws or other requirements.
2. complaint records
3. incident reports
4. information on emergency preparedness and response
5. information on significant environmental aspects
6. employee training records
7. process information
8. equipment inspection, maintenance, and calibration records
9. product information
10. pertinent contractor and supplier information
11. audit result
12. management reviews

EMS requires that EMS facilities establish a recordkeeping system for the implementation of EMS and to record the extent to which planned objectives and targets have been met. In other words, the purpose of recordkeeping is to identify all records pertinent to the implementation and operation of the EMS, including data which supports objectives and targets. In identifying records, proper account should be taken of confidential business information.

In designing an EMS recordkeeping system, it is up to you to decide how you want to identify records and the system for maintaining them. The records can be decentralized at the point of generation, or kept in a central location. The main point here is that records are ***identified*** and ***locatable***. The retention schedule for each record is up to you, based on necessity. This retention time is particularly important in relation to compliance with the legal requirements.

Records can be kept in hardcopy (paper copy), or electronically. A computerized database tailored for your facility may have a high initial cost (the capital cost) but the operational cost

would be low, saving you time and money later. Many companies do not have a records procedure per se, rather just a matrix of all environmental records, identifying where they are, and how long they are kept.

In keeping your facility records controllable, the following procedure should be considered:

1. Identify which records are to be kept.
2. Assign an ID number to all records.
3. Establish the level of security for each record.
4. Determine personnel who can have access for a record.
5. Determine personnel who can modify records, and provide a revision date in any of the modified records.
6. Determine personnel who can remove obsolete records, including how the removal process proceeds.
7. Specify the frequency of a review of records. Some records may need to be updated in order to satisfy legal requirements

The following sample protocol for EMS recordkeeping is provided to illustrate the control of facility records which incorporates the above requirements.

Procedure No.	**EMS-VII**
Issue Date	**January 1, 2005**
Rev	**0**
Title	**Protocol for Records and Recordkeeping**
Approved by	

1. Purpose

The purpose of this procedure is to establish and maintain records and a recordkeeping system for the **XYZ Company**.

2. Scope

This procedure contains requirements for keeping, indexing, storing, updating, and maintaining records for the EMS.

3. Procedures

3.1. Records to be kept for the EMS Program include:

a. Applicable environmental laws, permits, and other requirements
b. Complaint records
c. Information on emergency preparedness and response
d. Incident reports
e. Information on significant environmental aspects
f. Employee training records
g. Process information
h. Equipment inspection, maintenance, and calibration records
i. Product information
j. Pertinent contractor and supplier information
k. Audit result
l. Management reviews

3.2. Records will be indexed by using a specific numeric system designed by the EMS team.

3.3. Documents develop for the EMS program are to be retained for the life of the facility. Legal records are to be maintained at least to the minimum retention time as required by law.

3.4. Obsolete and outdated records are to be removed.

4. Updates and Reviews

The list of records will be updated as necessary. This records and recordkeeping procedure will be reviewed annually and updated as necessary.

5. Responsibilities

5.1. Each department is responsible to initiate changes in recordkeeping if deemed necessary.
5.2. The EMS Manager is responsible for updating the list of records, and the records and recordkeeping procedure.

6. Documentation

The list of records and the procedure for records and recordkeeping will be maintained in hard copy or electronically by the EMS Manager.

VII. Summary

In setting up an EMS, a facility identifies aspects of its operation that impact the environment, determines which of those aspects have significant impacts, and then develops objectives and targets with the goals of reducing the impacts. In implementing an EMS, which is the subject matter of this module, a facility needs to address the five factors that can be used to control those aspects of its operation from negatively impacting the environment.

The five implementation factors discussed in this module are (1) operational controls, (2) employee training, (3) internal and external communication, (4) emergency preparedness and response, and (5) documentation and record keeping. Each of these five factors are explained in detail.

The discussion focuses on the rationale as to why these factors are important to the successful implementation of an EMS and guidance on how you can make a plan to implement each of these factors. This includes samples of the respective implementation protocols.